

REMARKS

Claims 1-9 and 11-14 are all the claims pending in the application.

Claims 1, 2 and 3 have been amended for purposes of further clarity and based on, for example, pages 10-11, 19, 24, 27-28, and Example 7, of the specification.

Claim 12 has been amended so that it does not improperly depend from another multiple dependent claim and new claims 13 and 14, which correspond to claim 12 and depends from claims 3 and 4, respectively, have been added.

Entry of the above amendments is respectfully requested.

I. Rejection of Claims 1-9 and 11 under 35 U.S.C. § 103(a)

Claims 1-9 and 11 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chandross et al. (US 3,809,732) in view of JP 2002-356615 and JP 8-320422.

Applicants respectfully traverse the rejection.

Chandross is cited as disclosing making an optical waveguide by disposing a resin composition on a support and the resin comprises a polymeric moiety and a refractive index changing monomeric dopant. The Examiner recognizes that Chandross fails to disclose (1) the resin composition comprising the claimed pyridine derivative and (2) the path formed between two or more optical devices.

To compensate for the deficiency (1), the Examiner relies on JP '615. JP '615 discloses the use of a pyridine derivative as a photosensitizing agent to impart photosensitivity to a polyimide precursor (i.e., to obtain a photosensitive polyimide precursor composition). Owing to the photosensitivity, the photosensitive polyimide precursor composition layer 2 forms a core pattern layer 4 through exposure and development.

In Example 1 of JP '615, a core pattern layer was formed as follows.

[0041] Next, the above-mentioned photosensitive polyimide precursor solution varnish was coated on a silicon wafer having a thickness of 0.5 mm by a spin-coating method, followed by drying at 90°C for about 15 minutes.

[0042] After the above-mentioned drying, a glass mask in which patterns having 7- μ m line width are drawn at a pitch of 50 μ m was placed thereon, and 10 mJ/cm² UV irradiation was carried out from above, followed by heating at 170°C for 10 minutes. Then, development was carried out with an aqueous solution of 1.5 wt% tetramethylammonium hydroxide at 35°C, followed by rinsing, thereby forming a core layer of predetermined pattern. Thereafter, it was heated at 380°C for 2 hours in vacuum atmosphere to complete solvent-removal and imidation of the core layer.

In the disclosure of JP '615, the procedures are disclosed in paragraphs [0027] and [0034] as follows.

[0027] ... Then, after the initial drying, UV irradiation is carried out with a glass mask, etc. so that a desired pattern can be obtained. Thereafter, in order to complete the photoreaction, a heat treatment after exposure, so-called Pose Exposure Bake (PEB) is carried out, followed by development. As a developing solution for the development, an alkali aqueous solution is usually used. Then, to imidize the desired pattern obtained by the development, a heat treatment is usually carried out.

[0034] ... Subsequently, as shown in Fig. 1(B), a photomask 3 is placed on the photosensitive polyimide precursor layer 2, and UV irradiation is applied from above so that a desired pattern can be obtained. Then, it is developed with a developing solution to process into a predetermined pattern, followed by heat-curing for imidization, thereby forming a core pattern layer 4 made of polyimide pattern as shown in Fig. 1(C).

Throughout JP '615, the development step is directed to physical removal of part of the photosensitive polyimide precursor layer as shown in Figs. 1(B) and 1(C). Thus, the principle and process disclosed in JP '615 with respect to the pyridine derivative are completely different from the principle and process of the Chandross.

Further, none of the cited references discloses, teaches or suggests that the pyridine derivative disclosed in JP '615 works as the dopant in the invention of Chandross. Thus, one of ordinary skill in the art would not be motivated to use the pyridine derivative of JP '615 as the particular dopant in Chandross.

For at least the foregoing reasons, it is respectfully submitted that the present invention according to claim 1 is patentable over the cited art.

In addition, claims 2-9 and 11 depend, directly or indirectly from claim 1, and thus it is respectfully submitted that these claims are patentable for at least the same reasons as claim 1.

In view of the above, withdrawal of the rejection is respectfully requested.

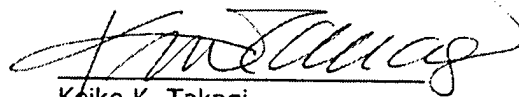
II. Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-9 and 11-14 is respectfully requested.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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